

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No. 09/743,962

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REMARKS

Claims 1-10, 14, 15, 20, 24, 25 and 27-33 are all the claims pending in the application.

Claim 1 is amended to clarify that the “collector has an active material provided thereon, a ~~pressure is added perpendicularly to the current collector plane, and~~ and there is provided a structure such that a pressure of 4×10^4 to 20×10^4 Pa is maintained perpendicularly to the ~~surface plane~~ of said collector in said storage battery.” Support can be found, for example, in the Japanese language specification at the time of PCT filing, with the claim language being presented in a manner such that it is correct English claim language. No new matter is added.

In addition, Applicants amend the specification at page 22, line 12 from the bottom to page 24, line 2, in the English specification. Support can be found, for example, in the Japanese language specification at the time of PCT filing. No new matter is added.

Entry of the amendment along with reconsideration and review of the claims on the merits are respectfully requested.

Claim Rejections - 35 USC § 102/103

A. Claims 1-4, 6 and 15 are rejected under 35 U.S.C. 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Dasgupta et al. (US 5,547,782) for the reasons given in the Office Action.

B. Claims 1-7, 10, 14, 20, 24, 25 and 28-33 are rejected under 35 U.S.C. 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Kao,

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positive electrode which is oxidized on the surface of Pb substrate and thus undergoes chemical bonding to PbO_2 as a positive active material. It is also necessary that the pressure be limited to a range of from 40 to 200 kPa since, if it is too high, it causes shortcircuiting.

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Substrate materials for bipolar lead/acid batteries, Journal of Power Sources, 70 (1998), for the reasons given in the Office Action.

C. Claims 1-5, 14 and 20 are rejected under 35 U.S.C. 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Bullock et al. (US 5,045,170), for the reasons given in the Office Action.

D. Claims 8, 9 and 27 are rejected under 35 U.S.C. 103(a) as assertedly being unpatentable over Kao, Substrate materials for bipolar lead/acid batteries, Journal of Power Sources, 70 (1998), for the reasons given in the Office Action.

In response to Applicants' previous arguments, the Examiner states that Applicant's arguments filed April 8, 2004, have been fully considered, but they are not persuasive.

The Examiner disagrees with Applicants' analysis of Claim 1, stating that the pressure element of Claim 1 applies to the collector surface, not to the storage battery (final product) and that the claimed pressure element is a product-by-process limitation because Claim 1 does not recite the pressure is present in the battery (final product).

Regarding the process limitation "a pressure of 4×10^4 to 20×10^4 Pa is maintained", the Examiner asserts that the claims do not recite that the collector is kept pressed in the storage battery, and that the claims do not recite how long the collector is maintained at the recited pressure. The Examiner believes that this limitation could be interpreted as the pressure at which the collector is manufactured before assembling the storage battery, by pointing to passages in the specification.

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Applicants respond as follows.

Applicants have made an amendment of adding "in said storage battery" to the end of Claim 1 on the basis of the description in the Japanese Claim 13 at the time of PCT filing. However, in the Japanese Claim 13 at the time of PCT filing, there is no specific wording corresponding to "in said storage battery" added at the present occasion. In other words, Claim 1 after the aforementioned amendment at the present time is not one resulting from a strict faithful translation of the PCT application.

However, the portion corresponding to the sentence "there is provided a structure such that a pressure of 4×10^4 to 20×10^4 Pa is maintained perpendicularly to the plane of said collector" set forth in the present Claim 1 is expressed in the original text in Japanese in such a tense as to be interpreted only as "a pressure is maintained in the battery".

Thus, Applicants make an amendment of adding "in said storage battery". Without adding this recitation "in said storage battery", the described content of the Japanese Claim 13 at the time of PCT filing would not be properly expressed as a correctly translated English claim. Namely, by adding the wording "in said storage battery", the original text in Japanese can be correctly expressed in the current claim set as amended.

The Examiner asserts on page 8, lines 8 to 9 of the Office Action that "Thus, the claimed pressure element is a product-by-process limitation because claim 1 does not recite the pressure is present in the battery (final product)."

As previously described, Applicants have made an amendment of adding "in said storage battery" to the end of Claim 1 so as to recite the fact that "the pressure is present in the battery".

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By this amendment, the fact that "there is provided a structure such that a pressure ... is maintained in said storage battery" has become evident. Accordingly, "the claimed pressure element" in Claim 1 is more clearly not "a product-by-process limitation".

Further, the Examiner asserts on page 8, lines 10 to 11 of the Office Action that "the claims do not recite that the collector is kept pressed in the storage battery". However, the claims recite that the collector is kept pressed in the storage battery, since "there is provided a structure such that a pressure ... is maintained... in said storage battery", as stated above.

Still further, the Examiner indicates on page 8, lines 11 to 12 of Office Action that "the claims do not recite how long the collector maintained at the recited pressure". However, this inquiry into a time limitation has already been shown above to be inappropriate.

The Examiner also indicates on page 8, lines 14 to 16 of Office Action that Claim 1 is limited by a product-by-process limitation on the basis of the description that "applying an active material to the substrate be subject to a high pressure because it has poor adhesivity between the collector and the active material". Applicants reason that the Examiner probably mistook the wording "applying" for the subject for "be subject to".

Applicants, as a result of contrasting the English specification with the Japanese one at the time of PCT application, found that the Japanese specification at the time of PCT application was not correctly translated into English. Thus, Applicants amend the specification so as to be a correct translation, by which it is clarified that the subject of this sentence is not "applying" but "the positive electrode plate" and that the verb for this subject (the positive electrode plate) is

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"needs". From the amended sentence, the invention of Claim 1 cannot be interpreted as being limited by a product-by-process limitation.

Also, the Examiner points out on page 8, lines 16 to 18 of the Office Action that Claim 1 is under a product-by-process limitation on the basis of the description "had been prepared at a pressure of from 40 kPa to 200 kPa". However, it is a matter of course that, in order for a final product under pressure to be produced, the product must be pressed in a certain step of production.

Therefore, it is impossible to judge that Claim 1 is under a product-by-process limitation on the basis of the aforementioned description. Moreover, Applicants amend the specification so as to be a correct translation of the Japanese specification, since the aforementioned description was not a correct translation of the Japanese specification at the time of PCT application. By this amendment, the aforementioned description has been deleted itself. From the foregoing remarks, the Examiner's interpretation that the invention of Claim 1 is limited by a product-by-process is more clearly shown to be improper.

The Examiner points out on page 9, lines 4 to 5 of the Office Action that "both the claimed invention and the prior art teach a current collector that can be produced at atmospheric pressure (product-by-process limitation)". However, Applicants insist that the pressure values set forth in the claim, i.e., 4×10^4 to 20×10^4 Pa, are not expressed in terms of absolute pressure but gauge pressure for the following reasons.

As it is apparent from the remarks given above, Applicants have amended "surface" in Claim 1 to "plane". Thus, the word used in the claim after amendment is not "surface" but

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"plane". The pressure in Claim 1 is restricted to only one direction perpendicular to the plane of the collector. If the pressure set forth in the claim is interpreted as an absolute pressure, then a pressure below atmospheric pressure would be included in the pressure range of 4×10^4 to 20×10^4 Pa. However, Applicants submit that it is impossible to regulate the pressure below atmospheric pressure only in one direction perpendicular to the collector plane. Thus, one skilled in the art would not interpret the pressure values of 4×10^4 to 20×10^4 Pa set forth in the claim other than as those in terms of gauge pressure.

Meanwhile, the Examiner interprets the pressure set forth in the claim to be of absolute value without indicating the reason why only such interpretation could be possible. Thus, the conclusion that the pressure values set forth in the claim are an absolute basis is not a reasonable conclusion.

As has been discussed heretofore, the claimed pressure element set forth in Claim 1 is not a product-by-process limitation, but an element specifying the final product of Claim 1. Therefore, Claim 1 should not be rejected over Dasgupta et al., Kao, and Bullock et al for lack of novelty or for non-obviousness. Further, since Claims 2-10, 14, 15, 20, 24, 25 and 27-33 are dependent from Claim 1, each of these claims should also not be rejected over Dasgupta et al., Kao, and Bullock et al., for lack of novelty or for non-obviousness.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) and §103(a).

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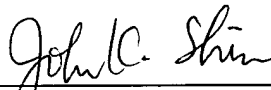
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Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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